Initiative for Policy Dialogue
Macroeconomics Task Force

Alternative Approaches to Stabilization Policy: An Overview

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No subject is of greater concern that the stability of the economy. Elections are won and lost on the basis of the economy's short run performance. Yet few questions are more controversial. In Europe, there is a debate about whether the stability pact and the central bank's exclusive focus on inflation is the cornerstone of a successful stabilization policy, or whether these institutional structures are dooming Europe to an extended period of weakness, if not recession. In the United States, the Republicans have become Keynesians, arguing that the deficits will provide the stimulation the economy needs, while the Democrats argue not only that the deficits will be a drag on the economy, and that the particular tax cuts will provide little stimulation. In Argentina, Korea, Thailand, and Indonesia, the IMF advocated contractionary fiscal and monetary policies in the context of clear signs of severe economic downturns.

It is important to understand the sources of the differences in these policy stances: Is it because of differences in objectives or models? In judgments about empirical parameters? In this paper, I try to answer these questions within a fairly general framework.

Our focus is on stabilization within *developing* countries. There are marked differences between developing countries and developed countries, and amongst developing countries. Easterly et al [2000] provides a brief description of some of the differences: there is, for instance, more economic volatility in developing countries, making the attention on stabilization particularly relevant. Though in general there is more wage and price volatility, in some regions such volatility is far greater than in others. In some regions, financial markets (which play an important role in many economic crises) are far more developed than in others; and securities markets, which are essential for risk

[1] This paper incorporates many of the ideas of the participants in the first task force meeting held at Columbia University, September 19, 2002.

sharing, while a limited source of finance for new investment even in the most advanced industrial countries[2], are particularly weak in most developing countries. While in more developed countries, there has been increasing concern about the efficacy of monetary policy, which focuses on banks as a source of credit, as the role of banks in finance has diminished[3], in most developing countries banks remain the most important source of finance; but with money and credit playing a far less important role in some of the poorest developing countries, in these countries too the scope for monetary policy may be limited.

Objectives.

We begin our discussion by focusing on objectives. At the most abstract level, the objective of economic policy can be thought of as maximizing long run societal well being, taking into account notions of equity, both amongst those alive today, and between the current generation and future generations.

Any focus on societal well being for developing countries has to take into account how stabilization policies today affect growth and development. A focus on equity needs to take particular account of those who are most disadvantaged, i.e. assess the impact of stabilization policies on poverty.

We focus on *individual* well being, and accordingly, must take into account that individuals are risk averse, that is, value *economic* security. There is, from this perspective, a high cost associated with economic structures that expose individuals to risk, and a high value associated with risk mitigation (e.g. unemployment insurance.) *If* individuals are credit rationed, that is, cannot borrow as much as they would like, then individual well being can be enhanced by economic policies that allow them to smooth their consumption, by borrowing more today than the markets would allow them.

The discussion of the preceding paragraph has focused on *economic* well being, but there are broader values, and economics is set within a social context. For instance, economic policies which are likely to give rise to riots are objectionable, not just because of the loss of income, or even because of the uncertainty about future loss of income to which they give rise. There are social costs of unemployment which go well beyond the loss of income.

Note that certain commonly found formulations can be viewed as limiting cases of that presented here. If all individuals are identical and have utility functions which are linear in income and leisure (up to, say, some maximum amount), and if society is indifferent as to distribution, then we can look only aggregate income and aggregate labor; alternatively, if individuals are identical, and the market always "shares work," then we can evaluate the outcomes in terms of a "money" metric of that representative individual's utility. Under these circumstances, it can be argued[4] that the cost of

[2] See Meyer
[3] See, e.g. Greenwald and Stiglitz
[4] See Lucas

unemployment is typically low, since the reduced income is minimal, particularly when v viewed from a lifetime perspective. Similarly, even if individuals are risk averse, but they can insure themselves fully against unemployment, or self insure by spreading the costs over their lifetime, the costs of income volatility for most individuals will be relatively small.

For most developing countries, however, individuals are very risk averse, often face credit constraints, cannot spread easily losses of income resulting from temporary unemployment over their lifetime, the incidence of reduced hours is not spread evenly throughout the population, and so representative agent models, and especially those which assume the ability to smooth consumption over a lifetime, provide little insight into the costs of macroeconomic fluctuations, and therefore little insight into the appropriate policies to be followed.

Notice that in this formulation, inflation does not appear as an explicit variable. It is an intermediate variable, which may, or may not, affect the variables which are of direct interest, e.g. growth rates and their variability. Inflation should be a target of economic policy only when the impact of policies on the variables which are of direct concern cannot easily and directly be assessed. (For instance, if the link between monetary policy and future growth is highly uncertain, but, if the link between inflation and growth is well established, when the impact of monetary policy on inflation can be assessed, then the impact of monetary policy on growth can be assessed, and then inflation becomes an intermediate variable upon which attention should be focused.

On the other hand, because unemployment may itself have social consequences—and is a surrogate for an inequality in the consumption of labor services—unemployment may appropriately appear explicitly as an object of concern of macro-economic policy.

In this formulation, the link between stabilization policies and growth should explicitly take into account. Only if current actions have no effects on future growth can one focus exclusively on current output and employment.

The link between current policies and future growth has not only been given short shrift in much traditional discussions of macro-economic stabilization, but to the extent that it has been discussed, there is little agreement even on the "signs." For instance, the IMF often advices countries to face the pain of adjustment, implying, in some cases, a deeper economic downturn: the implied promise is that future output will be higher. They have, implicitly, used a spring model—the further the spring is pulled down, the stronger the restorative forces. Yet critics suggest that there is a better analogy: the economy is like a weak spring—pull it down *too* much, and it remains permanently distorted. Restorative forces are destroyed. While both are mere analogies—neither is based on a detailed modeling—statistical analysis suggests that the critics are closer to the mark: the stochastic processes describing the economy exhibit close to unit roots, so that if the economy's output is lowered 10% today, the best estimate is that, ten years from now, output will be 10% lower than it otherwise would have been.

This example makes another important point: many of the *beliefs* and *assertions* about macro-economic policies, especially by politicians, but even by central bankers, are based neither on well formulated theories or well researched evidence. And part of the problem is that the complexity of economic systems often makes it difficult to provide clean tests of economic hypotheses.

I shall divide the discussion below into two parts, which will cover much of the same material, but from two quite distinct vantage points. The first approaches the issues from a *policy* perspective, where I identify three broad positions, which I shall label the "conservative," the "standard economics" and the "heterodox" approaches. The conservative approach worries about inflation and deficits, which it attempts to address through tight monetary and fiscal policy, the standard economics approach about unemployment and stagnation, which it attempts to address through expansionary monetary and fiscal policy; and the heterodox approach looks for non-standard ways—including the use of micro-economic interventions—to stabilize the economy, to stimulate growth and employment and contain inflation.

Three Perspectives on Policy

The best way to see the difference between the alternative approaches is to look at how they might respond to an impending slowdown in the economy.[5] As the economy goes into a downturn, government revenues decline, and some areas of expenditures increase, so that a balanced budget turns into a deficit.

The Conventional Economics Approach

The approach which has been conventional for more than a half century is that associated with Keynes: *increase* government deficits, cut taxes, let the deficit increase further, and lower interest rates. The increased spending and lower taxes stimulate the economy, as does the lower interest rates. While there is some preference for looser monetary policy over looser fiscal policy—the former encourages growth in the short run, the latter may actually harm it--when the economy is in a severe economic downturn—or now, when there is large excess capacity--lowering interest rates may fail to stimulate investment, and reliance has to be placed on fiscal policy.

Conservatives have critiqued the ability of fiscal policy to stimulate the economy on several grounds. First, deficits lead to debt, taxpayers know that the debt will have to be repaid, and hence households will be forced to save more. The net stimulation of the economy is small. The failure of deficits to stimulate the Japanese economy has provided some support for this view. This is known at the Barro-Ricardo hypothesis, and there is little general support for it either theoretically or empirically. So long as tax cuts go to those who are credit constrained—and there is some evidence that particularly lower income individuals are credit constrained—then a tax cut will stimulate consumption. Moreover, the Japanese example is not compelling. The question is, is there some form

[5] Elsewhere, I explore alternative approaches to dealing with crises. Stiglitz [ ]

of tax cut which would stimulate the economy, and even in Japan, the temporary cut of the consumption tax did seem to work. A temporary cut in the income tax *might* not work, because individuals may not view their long run (*permanent)* income as substantially higher; and the government cannot credibly commit itself to a permanent reduction in an income tax, in the face of soaring deficits. But a temporary cut in a consumption tax encourages consumption today—there is effectively a sale—and the assertion that it is temporary *is* credible. (Even a temporary cut in the income tax may have effects, because the current generation may pass on the burden of the debt to future generations; their *permanent* income is higher, even if future generations' income is lower. The result that a temporary income tax cut has no effect is predicated on individual's adjusting their *bequests* to make up for the increased public debt that will be bequeathed to future generations; since most individuals do not in fact leave bequests, it is implausible that these bequests fully offset the increased public indebtedness.)

There are other tax cuts designed to increase investment of firms, e.g. a temporary investment tax credit, which lowers the relative price of investing today, relative to investing sometime in the future, thus encouraging investment today (at the expense of future investment).

In recent years, attention has focused on the design of *low cost stimuli*, i.e. stimuli that provide a large bang for the buck. The prototype is the *incremental investment tax credit,* which provides an investment tax credit only on increments in investment (e.g. about 80% of last year's investment.) The incremental investment tax credit has the same effect *at the margin* of a full investment tax credit, but since most investment (the "base") does not receive any credit, the cost to the government is markedly less. (That, incidentally, was why businesses were distinctly uninterested in this idea.)

Under a standard neoclassical investment function[6], an incremental investment tax credit will be fully as effective as the standard investment tax cut[7]. If, however, investment by firms is limited by their availability of cash (or even by their net worth), then the incremental investment tax credit will *not* be as effective as a full investment tax credit.

The recognition of the importance of cash flow and credit constraints provides a variety of other stimuli which, particularly in the long run, have low budgetary costs. For instance, the government may extend the period of loss carry forward or carry back (which in any case would increase economic efficiency[8]), and make the losses fully credible to the extent that firms engage in investment. Alternatively, the government can provide credit to firms which are engaged in investment. The ability of government to recover loans is greater than that of private lenders.

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[6] e.g. Hall Jorgenson

[7] Except for those few firms who, even with the incremental investment tax credit, choose to invest less than, say 80% of what they had invested in prior years. Obviously, by lowering the threshold, incentives are increased (fewer firms are excluded), but so too are the costs.

[8] Auerbach has argued that limitations on loss carry forward and carry back are one of the major distortions in the tax system.

Cash flow constraints, combined with special institutional features of America's mortgage markets, have also provided an explanation for some of the successes of monetary policy in the United States in the recent economic downturn. As interest rates have fallen, households have refinanced their mortgages, taking out hundreds of billions of dollars, which have been used to sustain consumption. Households have been able to do this because there is conventionally no pre-payment penalty (such penalties would mean that households would only refinance their mortgages when the fall in interest rates was quite substantial), and most mortgages are fixed rate mortgages. To see the importance of these features, assume, to the contrary, that mortgages were only variable rate. Then households would not pay any attention to the nominal rate, only to the real rate; one of the reasons for the decline in the nominal rate is the decline in the expected rate of inflation, and to the extent that is the case, the decline in the real rate is much smaller. Moreover, if there are significant moving costs, then households will look not at today's real rate, but at the expected real rate over the holding period, and this too may vary little with changes in the current real rate.[9]

For developing countries, there is one further impediment to the reliance on fiscal policy: governments may find it difficult to borrow, to obtain the funds with which to finance their deficits. One of the main reasons for the founding of the IMF was to help countries to finance expansionary deficits, recognizing these capital market imperfections, and recognizing the interdependence of the countries of the world, that a downturn in one country has an adverse effect on others.

Keynesian economics, with its focus on employment, tends to look more favorably upon policies which result in lower exchange rates. (Of course, in a global economic system, not all countries can lower their exchange rates against each other; but small developing countries are, in this respect at least, at an advantage. They can choose an exchange rate policy without worrying about responses from the major economic players, though they still may have to worry about responses with more immediate economic rivals.) Lower exchange rates facilitate exports and help import substitution industries. In a full employment economy, they would thus simply reflect a movement of resources away from non-tradeables towards tradeables, but in an economy marked with unemployment of labor and other resources, the increase in demand for tradeables can result in an increase in demand for non-tradeables as well, as the increased income generated in the tradeable sector spills over to the non-tradeable sector.

There are a variety of mechanisms by which government can affect the exchange rate. Most directly, a decrease in the interest rate may—if its direct positive effects on the economy do not reduce the probability of default on loans significantly—make it less attractive to put money into a country, and accordingly may lead to a lower exchange rate.[10] In the short run, government may buy dollars (sell its local currency), and this intervention in the exchange rate too may lead to a lower exchange rate. There may also

[9] Even if there are not large buying and selling costs, households may believe that a rise in the real rate will be associated with a fall in the value of their asset, so that the expectation of (or uncertainty about) an increase in the real rate will have an adverse effect on investing in house today.
[10] See the discussion below and Furman-Stiglitz [1999]

be *micro-economic* interventions, e.g. discouraging the inflow of short term capital (Chilean style taxes on capital inflows) designed to prevent an appreciation of the currency.

As we note below, some of the most important stimuli to the economy have come through exchange rate changes. Still, there are, in many quarters, worries about a weak exchange rate, and even more, about marked changes in the exchange rate. These concerns are discussed below.

The Conservative Approach.

The Keynesian approach argued that *even if government expenditures were* directly *totally unproductive, that they neither provided consumption nor investment benefits, there were large social returns from the expansion of output which they engendered.* If, of course, government spends money on high productivity investments—and estimates put the return on government expenditures in certain areas, like R & D, as far higher than marginal returns to investment in the private sector—then the social benefits of these government expenditures can be enormous. Not only will output today be increased, but so will output tomorrow. They will increase future growth, even as they increase today's income. China's countercyclical expenditures in the East Asian crisis provide a case in point. (Part of the reason for China's success was that they were able to draw upon a set of investment plans that had already been largely prepared, but temporarily shelved for lack of funds.)

Conservatives, worried about an expansion of the size of the public sector, begin with the presumption that government expenditures are not productive (either as investments or consumption), and attempt to argue that they *also* fail to stimulate economic activity. There is one strand to the conservative agenda, popular in academic circles, but less so beyond, which argues that there is no need for stabilization policy, that the economy is always at full employment, that variations in observed levels of employment are largely a reflection of *voluntary* decisions on the part of workers, who because of the particular configuration of relative prices (wages, interest rates) *choose*, at particular times—like 1929 to 1933, during the Great Depression—to markedly decrease their labor supply. Normally, of course, workers who would have chosen leisure over work, who have decided to take a protracted vacation, might be thought to be happy to be relieved of the burdens of such ordinary toils; accordingly, to the conservatives who believe that these workers have chosen not to work, the mystery of their profound unhappiness is more a matter to be dealt with by psychologists than by economists.

At the heart of the conservative approach is the contention that expanding government expenditures is likely not only to be ineffective, but actually may be counterproductive. Of course, if expanding government expenditures is counterproductive, there is an obvious conclusion: contract government expenditures. Conservatives are more divided on the question of taxes, and the answer may seemingly depend on circumstances. Some (like President Bush) argue that reducing taxes in an economic downturn is a good thing, using Keynesian like arguments, though the more conventional conservative approach

(reflected in say IMF's stance in Argentina and East Asia) is that raising taxes is desirable, because it reduces the deficit. While Keynes argued that increasing deficits stimulates the economy, the conservatives argue that reducing deficits stimulates the economy.

There is one strand of the conservative agenda that, while recognizing that government actions might stimulate the economy, emphasizes the *temporary* nature of market disequilibria, of unemployment, and the slowness of government and of market responses to government actions, so that by the time the government recognizes a macro-economic problem and takes action, the economy is already on the way to recovery. The government action is, accordingly, more likely to lead to an overheating of the economy in the rebound. In this view, then, the government should simply accept whatever fluctuations the economy suffers: attempts to improve matters are likely to be counterproductive. Even those who hold this view, however, cannot argue against the desirability of designing automatic stabilizers, which change the "risk" properties of the economy, so that output and employment are less responsive to shocks. We take up the design of such stabilizers in Part II.

Moreover, the lags associated with different kinds of government actions differ markedly. An increase in unemployment benefits or assistance to states that otherwise would have been forced to cut back their expenditures can have a large and almost immediate effect. The fact that the economy may recover of its own accord within, say, a year, may limit the desirability of taking actions where the lag in effect is greater than a year, it says little about the desirability of taking actions with shorter lags.

The conservative "mainstream" however argues either that government actions are likely to be ineffective, or counterproductive. The essential argument is that increased government expenditures (say, keeping taxes constant, so that deficits increase) discourages other forms of aggregate demand, so that total aggregate demand remains unchanged or is decreased. Conversely, reducing government expenditures encourages other forms of aggregate demand.

The most popular version of this argument invokes the hard-to-verify notion of *confidence*. Investors, seeing soaring deficits, lose confidence in the economy, decide not to invest, and this brings down the economy; resolute government action to counter the deficit, by lowering government expenditures, increases investment, and quickly restores the economy to health. The counter argument is that investors look at a range of variables, including the economy's unemployment rate and growth rate; and the *impact* effect of the reduction of government expenditures is to decrease growth and increase unemployment, and that this direct effect normally overwhelms the effect on confidence of deficit reduction. This is especially the case because the reduction in GDP itself reduces tax revenues, so that the impact of the reduction of government expenditures on the deficit is smaller, sometimes markedly smaller, than it would be if GDP had remained constant.

Remarkably, in spite of the frequency with which the confidence argument is invoked, there is little empirical research on the matter (including by the IMF, which seems to rely on it so heavily). The overwhelming weight of evidence, however, for developed countries is that contractions of government expenditures lead to a lowering of GDP—the confidence effect is dominated by the direct impact effect. The effects in developing countries are complicated by limitations of the availability of finance, an issue to which we turn shortly. But even in developing countries, expenditure reductions forced on Argentina and the East Asian countries did not have the positive effects promised by the IMF, but rather had the negative effects predicted by the more standard models.

The only major recent circumstance in which deficit reduction (contraction of government expenditure) has been associated with recovery is the 1993 deficit reduction and recovery in the U.S. The standard story put forward, however, is intellectually incoherent. Deficit reduction, it is said, led to a reduction in long term interest rates, which stimulated investment, more than offsetting the direct impact of the reduced government expenditures. But if, as alleged, investment expenditures are highly interest elastic, then the central bank (Fed) could have directly lowered long term interest rates (e.g. by open market operations involving long term bonds). Thus, deficit reduction was not necessary to achieve recovery. To be sure, the fine tuning of the structure of deficit reduction was important: relatively little immediate expenditure cuts meant that the impact effects were small, while the longer term commitment to deficit reduction meant significant reductions in long term interest rates. (Ironically, the Bush conservatives are now claiming that deficits have little impact on interest rates, and there is a large literature suggesting that interest rates have limited effects on investment. If those conservative arguments have validity, it reinforces the conclusion that if the 1993 deficit reduction contributed to recovery, it must have been through some other mechanism.)

The 1993 argument for why deficit reduction worked is closely related to a standard argument for why increased government expenditures will not work: government borrowing to finance expenditures increases the interest rate, which crowds out private investment. In a full employment economy, crowding out arguments are persuasive: an increase in expenditures in any category must come at the expense of decreased expenditures in other categories. But on a priori grounds, when the economy is below full employment, there is no necessity of crowding out. Increased government expenditures might stimulate the economy so much that there is even room for more investment, not less. Clearly, if investment is interest elastic, and the central bank can act to prevent a rise in interest rates, then there is no necessity of crowding out; and presumably, the improved economic situation (including strengthened cash flows) should lead to more investment.

There is a more subtle argument, noted earlier, that taxpayers, recognizing that the higher deficit will be associated with higher taxes in the future, reduce their consumption. (In this case, it is as if government expenditures crowds out private consumption.) But, as we noted, that conclusion has little empirical support[11], and will not be true if there are credit and cash flow constraints and/or redistributive effects.

[11] Brief review of literature on Barro-Ricardo effect

There is a slight variant of these crowding out arguments for a small open economy, captured by the basic identity

$B_f = M - X = I - S_g - S_p$

Net borrowing abroad (B_f) equals imports minus exports, and equals the gap between domestic investment and domestic savings, which in turn consists of government savings and private savings. As an extreme case, assume a perfect global capital market, and that investment and private savings are *just* dependent on the global interest rate. Then an increase in government expenditures, reducing government savings, is accompanied by an increase in foreign borrowing, which in turn is associated with an increase in net imports, so that

$G + X - M$

remains unchanged, i.e. there is no change in aggregate demand. But the assumptions underlying this model are very stringent. In particular, for instance, there is no uncertainty about changes in the exchange rate; more generally, even if savings and investment are functions of interest rates, they will depend both on the international rate, and the "domestic" rate, which is set by the monetary authorities.[12] Moreover, domestic investment depends on credit availability and cash flows, not just on interest rates.

The conservative policy approach is both more pessimistic about the efficacy of fiscal policy and of monetary policy. Correspondingly, it is more worried about inflation than unemployment . Looser monetary policy, it is worried, will result not in more output, but simply in higher prices. While at various times, conservatives have put forth different reasons for coming to that conclusion—with the classical dichotomy, real variables were determined by the "reals," and the money supplied simply determined the price level; with the new classicals, there was a vertical Phillips curve, so that attempts to change the unemployment level were futile—underlying these is the belief that the economy functions well, so that the economy is as close to full employment as can be obtained, given the inevitable frictions in the economy.

(Today, while the concept of the long run vertical Phillips curve remains debated[13], it seems clear that the government can affect the level of output and unemployment in the short run.[14] The models in which monetary policy has no effect are highly special, e.g. assuming risk neutrality on the part of all agents. Of course, if output were really unaffected by monetary policy, there would be little concern about inflation, since it would not have any adverse effect on output and employment.)

The conservative approach to macro-economic stabilization policy sees low interest rates directly leading to a risk of inflation, or through a risk of excess demand, but also through a depreciation of the currency and a decreased supply of external resources. Depreciation

[12] With risk neutrality, the expected rates (taking into account expected changes in exchange rates) are always the same.
[13] references
[14] references

of currency leads to higher prices of imports, and this can be passed on through the economic system, leading to an inflationary spiral. Indeed, they see a real risk that attempts at currency depreciation will be self-defeating: as prices rise, there will be no lowering of the real exchange rate. The evidence, however, is that at least in the short term—the focus of stabilization policy—the government can successfully lower the real exchange rate; and as we comment below, there is no necessity that such lowering of the exchange rate lead to an inflationary spiral, as evidenced by the marked decreases in exchange rate in East Asia.

By the same token, higher exchange rates will be associated with a lower level of demand for exports and import substitutes and a higher level of capital inflows; with less demand on the country's output, and a greater availability of resources, presumably there will be less inflationary pressures—unless the increased capital flows lead to greater credit availability and higher levels of investment, more than offsetting the reduced demand for exports and increased supply of resources. In the standard models, in which investment depends simply on the real interest rate, or the real interest rate and the exchange rate, investment is likely, if anything, to be reduced (though the effect may depend on the relative sensitivity of investment in the non-tradeable and tradeable sectors to the exchange rate.) In practice, the effect depends on a host of factors not incorporated into the standard models.

The heterodox Approach

The standard Keynesian approaches emphasized aggregate demand, with consumption depending on current income, and investment depending on interest rates. As macro-economics evolved, greater emphasis was placed on the intertemporal context in which consumption and investment decisions were made. It was lifetime income (or permanent income) which mattered, so that temporary income tax cuts would have little effect, though temporary sales taxes presumably would (the magnitude of the effect depending on the extent of intertemporal substitution.) Lifetime (or permanent) income in turn depended on *expectations*, because individuals could not today sell forward labor services, nor could they buy insurance against variations in the real wages they might receive. Investment too depended on expectations, concerning future prices and demands.[15]

One important strand in what I shall broadly call the heterodox approach focuses on how government policy might affect those expectations. Particularly important in this area are attempts to affect inflationary expectations. If, for instance, a currency devaluation is expected to bring about a fully offsetting increase in domestic prices, then no real devaluation will be expected, and hence investments in export industries will not increase. There may be a short term blip in exports, but it will not be sustained. If, however, the government credibly announces an inflation targeted monetary policy[16], then investors may believe that real exchange rate decrease may be longer lasting, and be willing to increase investments in the export sector. There appears, however, a high

[15] Since realistically, most firms are not price takers, what mattered was the demand functions they faced.
[16] How it does that is another matter

degree of instability to the process of expectation formation, with market participants seemingly placing heavy weight on recent experiences. For instance, recent large devaluations have not given rise to inflationary spirals, and in some cases, there has been relatively little inflation, and accordingly, market participants seem to respond to currency depreciations with less inflationary expectations.

Other important strands have emphasized not only demand side effects, but also supply side effects, not only expectations, but also constraints, including cash flow and credit constraints, and a broader range of balance sheet effects. Most of the standard models assume competitive markets, but with competitive markets, a small open economy should never face an aggregate demand problem: an appropriate change in the exchange rate would lead it to face a horizontal demand curve. Fluctuations in output must, accordingly, be based in fluctuations in aggregate supply, not aggregate demand. The theory of the risk averse, credit constrained firm provides micro-foundations for such variability in supply: For instance, a firm that cannot get access to working capital will contract its supply. Since firms cannot divest themselves of risk (there are imperfect equity markets[17]) and since most production involves risk bearing—firms have to put out money for inputs before they sell their output—variations in the ability and willingness to bear risk, for instance, as a result of a change in the firm's balance sheet, will result in variations the firm's supply curve. A shock to aggregate demand in one period will affect profitability, and hence the firm's balance sheet—and hence aggregate supply in subsequent periods. Demand and supply are intertwined.

Stabilization policy needs to take these effects into account. When this is done, it suggests that some policies are less effective than they might otherwise seem, while others may be more effective. Most importantly, it identifies different conditions under which policies may have different effects. Consider, for instance, the effect of a large increase in the interest rate, recommended by the IMF in the context of the East Asia (and other currency) crisis, as a way of limiting the depreciation of the exchange rate. The large increase in the interest rates had the usual effects of depressing investment (and thus contributing to the economic downturn) and long term asset values (including, for instance, real estate). In many cases, firms were unable to meet their debt obligations, and the recognition that not all firms could be forced into bankruptcy meant that some firms decided strategically not to repay what they owed. Banks in turn could not make loans, especially when pressure was put on them to set aside reserves and quickly to come into compliance with capital adequacy standards. The economic downturn contributed to a general sense of uncertainty and risk; and the fact that different firms had asset structures that were differentially affected by the large changes in asset prices meant that there was increased uncertainty about the value of balance sheets. The result was that the response of exports to the currency depreciation was much less than expected: exporting firms could not obtain the working capital they required; for this reason, and because of balance sheet effects combined with risk aversion, there was an adverse shift in supply curves. Moreover, importers recognized that because of the increased likelihood of bankruptcy of the exporters (or of bankruptcy of the suppliers to exporters),

[17] The imperfections can be explained through models of asymmetric information.

the exporting firms had become more unreliable suppliers, so that there was an adverse shift in the demand curve.

One of the arguments for high interest rates was that it would attract capital into the country, which would help stabilize the exchange rate. But the deepening economic recession caused by the increased interest rates, and the broader increased uncertainty noted earlier, meant that risk averse investors found it less attractive to put money into the country, or at least mitigated the increased attractiveness of the increase in interest rates by itself.

By the same token, the effects of a currency depreciation depend critically on the circumstances of the country. If a country is a net debtor (in foreign denominated terms), then *on average*, the country will be worse off; and the worsening balance sheets will depress consumption and investment. If a country is a net creditor, it is better off *on average*. But even if it is a net creditor, some firms within the economy will be net debtors, and the economic consequences of their losses may more than offset the benefits of those who are better off. Thus, the impact of a currency depreciation will depend critically on an assessment of the balance sheets of the agents (firms, households, government) within the economy. Japan is a net creditor; Thailand, Korea, and Indonesia were net debtors. In Malaysia, most of the firms and banks had limited exposure. In Thailand, the firms that were most heavily exposed were the real estate firms, and the banks that had lent to them; these were already bankrupt, so that further depreciation would have little marginal effect; the other major group of heavily indebted firms were exporters, and they often gained more from the increased Baht value of their exports than they lost from the increased baht value of their dollar denominated debt.

Depreciations have an adverse effect on producers of non-traded goods that rely on imported intermediate goods, and, especially when there are credit constraints, the adverse effect on their production may occur *prior* to the positive effect on exports, in which case the impact effect of a depreciation may be negative, contrary to what the simple macro-models would suggest.

While this analysis cautions against large changes in interest rates (of the kind that the IMF has often recommended), it also suggests a variety of other instruments for helping stabilize the economy. For instance, extended loss carry-forward and carry back provisions enhance the sharing of risk between firms and government. If cash flow constraints are important, an incremental investment tax credit may not be as effective in stimulating investment as a standard investment tax credit, and an exclusion of dividends from taxation may encourage the distribution of earnings, and adversely affect investment.

A particularly and increasingly important strand of work focuses of debt deflation: when the economy goes into a downturn, and there is deflation (or inflation is less than expected), the redistributive consequences (between debtors and creditors) can be very large, and lead to significant effects on both demand and supply. While recent experiences in Japan have called attention to this possibility, there have been important

earlier episodes of deflation, and the heterodox models, focusing on balance sheet, cash flow, and credit constraints have provided a theoretical framework within which the effects of deflation can be examined.[18]

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Risk Analysis

The economy can be viewed as a complex, dynamic system, buffeted by a variety of shocks. Stabilization policy, broadly defined, attempts to (a) limit the shocks; (b) enhance the capacity to cope with the shocks, and in particular, dampen their effects; and (c) identify circumstances in which discretionary interventions might help stabilize the economy. Modern risk analysis focuses on the interrelations among variables (e.g. their correlations), and takes a *portfolio approach* to interventions, recognizing that there is uncertainty associated with the impacts of any particular instrument, and that accordingly risk can be reduced by relying on a multitude of interventions.[19]

Many economic reforms in recent years, whatever their other merits, have in fact increased developing countries' exposure to shocks. Most notable in this respect is capital market liberalization, which has subjected developing countries to the whims of international capital markets, and of speculators in particular; but the move from quotas to tarrification has also made countries more subject to commodity price shocks. While in principle, greater openness, e.g. to international capital markets, opens up the possibility of additional mechanisms for buffering an economy, e.g. by countercyclical borrowing from abroad, in practice, such capital flows have been highly procyclical.

Many of the "shocks" facing market economies are *endogenous*, the result of asset market bubbles which inevitably break.[20] Such bubbles, the financial market crises to which they give rise, and financial crises more generally, are particularly associated with financial market, capital market, and other forms of liberalization.[21] Liberalizations are often associated with a race to become the dominant player in a market (in the belief that competition in the market will not suffice to eliminate profits, generating strong competition for the market), and such races are often, in turn, associated with the construction of excess capacity—evidenced most recently by the telecom boom and bust in the United States.[22]

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[18] See, in particular, Fisher [ ], and the revival of Fisher's debt-deflation analysis by Greenwald and Stiglitz [ ]

[19] See, e.g. Greenwald and Stiglitz [ ] and, in the area of financial market regulation, Stiglitz [ ] and Honohan and Stiglitz (other references)

[20] To some extent, asset market bubbles can be related to one of the market failures to be described below: the absence of future markets extending infinitely far into the future. In the absence of such futures markets, the differential equations describing short run market equilibrium (the equality of returns, inclusive of capital gains) can be satisfied along a dynamic path in which such bubbles can appear. See, for instance, Hahn [1966] and Shell and Stiglitz [1967].

[21] reference

[22] Again, this problem can also be related to the market failure of the absence of futures markets, which results in an investment coordination problem.

Some reforms, e.g. the reduction of progressivity of taxation, as greater reliance is placed on a V.A.T. with fewer progressive exemptions have weakened the role of automatic tax stabilizers, while weaker safety nets (unemployment insurance) have weakened automatic expenditure stabilizers. Still other "reforms" have introduced built-in destabilizers: strong capital adequacy requirements without forbearance imply that when an economy goes into a downturn, there may have to be a contraction of credit, since the bank cannot find alternative sources of finance (at "reasonable" terms.)

Still other reforms may have strong effects, depending on the circumstance. In particular, certain reforms, like individual pension (defined contribution) accounts, transfer risk from the corporation to households. While such a risk transfer (from those more able to bear risk to those less able) is almost surely welfare reducing, it may also be destabilizing, since in the event of a downturn in stock market prices, households will respond more strongly, cutting back consumption, than would firms (whose actions are more directly related to cash flows, credit availability, and net worth.)

Greater labor market flexibility, similarly, may lead to greater volatility, since such flexibility will be reflected in greater income volatility of workers, who respond by cutting back their consumption in a downturn. The increased profitability of firms in a downturn *may* help buoy investment, but to the extent that investment is determined by future expectations, it may not.

Developments in financial markets which enable the transfer of risk from those less able to bear it to those more able should, at the same time, be conducive to stability. Rich individuals, for instance, can smooth consumption over their lifetime, so that were they to provide wage insurance for poorer individuals, who are more likely to be credit constrained, it would enhance stability. On the other hand, deregulation of financial markets, which results in banks undertaking greater risks, and as a result, an increased probability of financial collapse, enhances economic instability.

Easterly, Islam, and Stiglitz [2000, 2001] have attempted to ascertain, using standard cross country methodology, the factors which contribute to increased economic stability/volatility. It appears that greater wage flexibility is associated with greater *instability*.

The effects of financial depth appear to be more ambiguous, presumably because when financial depth is associated with better functioning capital markets, it allows smoothing of consumption and investment (reducing the impact of credit constraints, which have accelerator like effects), but when financial markets are deep but not well regulated, they can give rise to greater instability, as in the case of East Asia.

Risk and discretion

If the economy were described by stationary stochastic processes, and those processes were well understood, then presumably one could design *rules* which would specify how various "actions" (expenditures, taxes, etc.) would respond to different observations.

There would be no reason not to make all actions automatic, and the only stabilizers would, accordingly, be automatic stabilizers. To be sure, the extent of such automatic stabilizers might be far greater and the design of such stabilizers might be far more complicated than in standard models (for instance, they might depend not only on levels, but on rates of changes, and changes in the rates of change.) Stabilization would be viewed as a standard "control problem," albeit a complicated one.

However, there is every reason to believe that the economy is not well described by a stationary stochastic process. There are complicated changes in the structure of the economy, the impacts of which have to be evaluated and assessed: Has the NAIRU, the level of unemployment below which inflation increases, fallen, and if so, by how much? Is the "New Economy" real, and if so, what is the increase in the economy's potential growth rate? Judgments have to be made, informed by past experience, but the appropriate responses cannot be summarized in terms of any simple rule.

Policy Frameworks

Risk and Policy

These changing structures of the economy—combined with that, even if the structure were not changing rapidly, our knowledge is still likely to be imperfect—means that we cannot be sure of the consequences of any policy. There is always risk. A seeming economic downturn may be less serious that current indicators suggest, implying that expansionary fiscal policy might lead to inflation. Alternatively, the NAIRU may have fallen, meaning that there is more room for expansionary fiscal policy; not taking advantage of this unnecessarily condemns resources to idleness.

Any stabilization policy must, accordingly, be subject to a *risk assessment*, ascertaining the risks associated with alternative policies and who bears those risks. A risk assessment has to take into account option values—how a particular action affects the ability to take future actions as more information becomes available—and irreversibilities, how costly it may be to reverse adverse effects. For instance, as the U.S. economy began to recover from the 1990-1991 recession, by early 1994 there were worries that it might become overheated. Standard econometric models suggested the NAIRU was around 6.0 to 6.2%, but alternative models, focusing on changes in the labor market, had suggested a marked reduction in the NAIRU.

Those who argued for "stepping on the brakes" argued that (i) the costs of inflation were high; (ii) once inflation started, it would likely increase—the economy was on a finely balanced precipice of low inflation, and could easily be disturbed; and (iii) the costs of disinflation were high. Econometric studies conducted by the Council of Economic Advisers questioned each of the three premises: at low levels of inflation, there appeared to be little if any adverse effect on growth; the stochastic processes describing inflation showed mean reversion, rather than a tendency to "explode"; and the costs of disinflation were not significant—the relationship between unemployment and the change in the

inflation rate was either linear (meaning that the costs incurred in disinflation were exactly balanced by the gains experienced in the inflationary period; with discounting, the disinflationary costs were in fact lower) or convex (meaning that the costs of disinflation were smaller than the gains). Moreover, those who argued for a policy of cautious expansion emphasized that inflation was not an end in itself, and one had to focus on the distributive, social, and dynamic benefits from expansion: expansion would bring into the labor market those who had previously been excluded, and accordingly would be of enormous benefit to the poor; the social benefits would exceed the gains in income, and should include the predicted declines in violence and crime; and that as more individuals were brought into the labor market, the NAIRU itself might be reduced, as individuals who are brought into the labor market become more adept at job search (the reverse of the hysteresis effects noted in Europe during its period of high unemployment[23].) A risk assessment thus strongly suggested that even if one thought that the NAIRU was, say, 6.0%, it would be worthwhile pushing the economy a little further.

Another example where risk assessment seems desirable, but often does not occur, is in the arena of debt management. Russia, in the period immediately before the Ruble crisis in August 1998 provides a case in point. Government bonds denominated in rubles were paying far higher interest rates than were dollar denominated bonds. These too paid a high interest rate, reflecting default risk. But the interest rate on ruble denominated bonds reflected the additional exchange rate risk. If one believed that markets were well informed and risk neutral, the difference between the two interest rates represents the expectation of a devaluation. A prudent government borrowing in dollars would have set aside a reserve fund to reflect the expected extra costs upon the event of the devaluation. But the IMF, focusing on the short run budgetary advantages of borrowing in hard currency, and ignoring the desirability of setting aside a reserve—which might admittedly have made matters worse, but suggesting a lack of commitment to the current exchange rate-- encouraged Russia to borrow in dollars. While this lowered slightly (analysis at the World Bank suggested negligibly, since the likelihood that the exchange rate could be sustained in any case was nil) the probability of a crisis, it markedly increased the adverse consequences of a devaluation, should it occur. It meant that the gains from exports and import substitution would be largely offset by the adverse effects on the country's balance sheet, making it more difficult for it to emerge from the deep depression into which he had sunk. It accordingly meant that there was a higher likelihood that the country would have to default on its loans (should the crisis occur in the near term[24]) What should have been clear was that the decision to encourage Russia to move into hard currency bonds had significant risk implications; but these implications were given scant attention, and not included in any formal budgetary analysis.

Accounting Frameworks

[23] reference

[24] The high interest rates on GKO and the resulting increased indebtedness suggested that, if the crisis did not occur for some time into the future, it is possible that long term default probabilities might have increased.

Macro policy is often guided by a focus on intermediate variables (like inflation) and accounting frameworks (budget deficits, measures of output.) The link between these "signals" and the real variables which are of concern is both tenuous and controversial.

Budget deficits numbers serve several purposes. They are supposed to provide at the same time an indicator of inflationary pressure, a measure of government borrowing requirements, and a signal concerning government's balance sheet position. Ideally, there might be separate accounting frameworks oriented around each of these. As it is, the accounting frameworks used by most governments are a mélange, providing unreliable indicators with respect to any of the variables of interest.

For instance, if the government kept a capital account, one could measure increases in assets and liabilities. Borrowing for current consumption should be treated differently from borrowing for investment. There are, however, well known difficulties in differentiating between true investments and consumption expenditures, with governments attempting to claim tat most expenditures are really investments in the future.

By the same token, the sale of national assets (privatizations) is often treated as revenues, even though, if the proceeds are spent on consumption, the country is poorer. Of course, government borrowing requirements are reduced.

The most egregious example of inappropriate accounting frameworks has entailed the long standing discussion between the World Bank and the IMF over the treatment of foreign aid, exemplified by the dispute in Ethiopia in 1997, a country which at the time had exhibited robust growth for more than five years, no inflation, and, according to the World Bank, budget balance, but according to the IMF, a large budget deficit. The dispute revolves around the treatment of foreign aid, which the Fund insisted not be included in the budget, because such revenues could not be counted upon. In fact, analyses at the World Bank showed that they were less volatile than tax revenues. The appropriate response, of course, was that offered by the Ethiopian government: if revenues are highly variable, expenditures have to be highly flexible; and their expenditure programs had a high degree of built in flexibility, with village schools and health clinics, for instance, only being constructed as revenues were received.[25]

To take another example, government expenditures to recapitalize the banking system are often treated just like ordinary expenditures, though such expenditures do not directly increase aggregate demand; they have an impact on aggregate demand only to the extent that the bank expands its credit supply—but such impacts would be no different from any other monetary expansion. Sometimes, it is argued that the interest on such government expenditures should be included in the deficit, though not the principle. The underlying principle, however, is not clear. Again, it depends on what information the budget deficit is supposed to convey. If it is suppose to convey information about impacts on aggregate demand, then it depends to whom the interest is paid. Traditionally, interest is treated as if it were a transfer payment, with the impact on aggregate demand depending

[25] In the last couple of years, the IMF seems to have exhibited more flexibility on this issue. **details**

on the marginal propensity to consume of the recipients. *If* the interest is paid to domestic lenders, then it presumably would add to aggregate demand, much as any other source of income would; but if it is paid to foreigners, then the impact on domestic aggregate demand would be negligible. *If* it is supposed to convey information about government borrowing requirements, then it depends critically how government plans to raise funds. In some cases, government can recapitalize the banking system by borrowing from the banks themselves, or issuing bonds which are held by the bank; in either case, there is no impact on the remainder of the market (other than through the government's overall credit rating, and since such bank recapitalization often entails little more than converting a contingent liability into a slightly more explicit liability, even that is likely to be little affected.) Recognizing this, the interest rate paid on such borrowing or bonds can be negligible.

Most accounting frameworks do not take into account contingent liabilities, though not doing so provides strong incentives for budget chicanery. Governments can lend money, knowing that it will not be repaid, and such loans are not treated as expenditures, at least in the year in which they are made. (The United States, since the Credit Reform Act of 19xx has required an actual estimate of the losses from any loan be added to expenditures in the year in which the loan is made.)

The IMF has long treated borrowing by government owned corporations in Latin America differently from that of government owned corporations in Europe. In the former case, there is a consolidated balance sheet, with such borrowing treated as if it were an increase to the government deficit; in the latter case, the borrowing is not consolidated.

Some policy reforms have worsened the government's apparent budgetary position, while at the same time actually improving it, and have provided otherwise misleading information about the state of the economy. Consider, in particular, the privatization of social security which has occurred in many Latin American countries. The privatizations have redirected the inflows of funds from the government into private accounts. Accordingly, the government's budget often looks worse, as it continues to pay for current retirees, albeit sometimes even these benefits may have been cut back. The privatization has reduced the accumulation of contingent liabilities, but since these contingent liabilities do not appear on the books, these gains are no where evident. The increased *apparent* deficit leads some to mistakenly conclude that there are inflationary pressures from the budget; but in terms of anything *real* nothing much has happened: individuals disposable incomes remain unchanged, since they are forced to send to the private social security accounts what they formerly sent to the public social security accounts. Government "saving" is down, but private saving is up by an exactly corresponding amount. Indeed, if the government borrows from the private social security accounts, it is doing what it was implicitly doing before (borrowing from the public social security accounts). The taming of expectations concerning future benefits brought about by privatization might actually lead to more private savings and reduced consumption. The magnitude of these effects is large: had Argentina, for instance, not

privatized its social security system, it is estimated that it would, even at the time of the crisis, have had no budgetary deficit. It was entirely due to the privatization.

Measures of output—typically taken as a key measure of the success of economic policy—suffer from similar problems. A country should be interested in the welfare of its citizens, which is reflected more in GNP statistics than in GDP. GDP could go up, even as the citizens of the country become poorer as they sell off to foreigners national assets. Still better are measures of national output that take into account depreciation of capital, depletion of natural resources, the degradation of the environment, and the assumption of risks, e.g. with short term foreign borrowing.

Political Economy: Institutions and Institutional constraints

If government has the power to affect the level of economic activity to stabilize the level of economic activity, it must also have the power to destabilize it. Viewing the government as an independent actor within the economy, with its own incentives, provided by the political process, whether it stabilizes or destabilizes it depends then on the incentives it faces. In democracies, the incentives the government confronts depends on the voting behavior of the citizens. An earlier literature[26] depicted voters as myopic, willing to be beguiled by robust growth in the months leading up to an election, to be inevitably followed by inflation, contraction, a downturn. Only by delegating the responsibility for macro-economic management—and in particular for monetary policy—to a body somewhat removed from the political process can macro-economic stability be achieved, in the view of those who see politics at the root of macro-economic instability. Critics, though, see this institutional arrangement as entailing a high price in terms of democratic governance—there are few issues which are of more importance to citizens than the quality of macro-economic management; election regressions show that as the major determining factor in electoral success; yet with delegation, the government is being held accountable for that which it is not responsible. Moreover, as we have argued, issues of macro-economic management entail trade-offs, necessarily involving political decisions, decisions that cannot be devolved to technocrats. While there has been considerable discussion of the desirability of *independent* central banks, there has been much less discussion of the importance of *representativeness*, and the two concepts are distinct.

To justify the delegation of political responsibility to technocrats, the mandate of the central bank has been narrowed, to fighting inflation. More sensitive democratic governments have argued that the level of the inflation target should be said by the government, for it is that that involves the trade-offs referred to earlier. But still, there are risks associated with missing the "target," with different groups bearing the costs of those risks, so that even a government specified inflation target does not depoliticize the conduct of monetary policy.[27]

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[26] Nordhaus [ ], Frey [ ]

[27] To be sure, one could imagine a process in which information about the state of the economy is continually being conveyed from the Central Bank to the government, who conveys to the Central Bank not

While there is some evidence that independent central banks with an inflation target do achieve lower levels of inflation—it would be striking if they failed to do so—inflation, as noted earlier, is only an intermediate variable, and the question is, do the economies with such institutional structures achieve better performance in *real* terms, e.g. growth, unemployment, poverty, equality, or even the short term trade-off between unemployment and (change in the rate of) inflation, the sacrifice ratio. The evidence does not suggest that they do.[28]

Indeed, simple theoretical models suggest that with shifting demand and supply curves, an attempt to stabilize prices may well lead to the destabilization of output; price adjustments are meant to buffer quantity adjustments, and by reducing the scope for such price adjustments, one places more of the burden on quantity adjustments.

Institutional arrangements, however, can embed commitments which might not otherwise be enforceable (problems of dynamic consistency), and can thereby be welfare enhancing.[29]

Formal Approaches

The preceding discussion took as its point of departure recent policy debates, informed by advances in economic theory. There has been a parallel discussion, focusing on the ways that actual market economies differ from the benchmark, the competitive equilibrium model in which all markets (including the market for labor) clear. While older stabilization theories were developed on the basis of models of the business cycle—difference and differential equations that yielded oscillations of regular periodicity—there is increasing evidence against such fluctuations[30]; and indeed, if there were such periodicity and if government policies were effect, they should presumably act to countervail: if every six years, the economy goes into a recession, then monetary authorities should engage in strong monetary expansion, say five years after the last trough. But while there are not regular cycles, the economy is subject to enormous fluctuations. There are a myriad of shocks; and although many of these are offsetting—the demand for products in one industry go up, in another go down—a few are of such a nature as to have macro-economic consequences.

While recent macro-economic modeling has often centered on models in which deviations from the standard competitive model are limited—wages and prices are, for instance, fully flexible, and while there may not be a complete set of markets, individuals behave as if there were, with rational expectations concerning wages and prices, for

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only an inflation target, but a Bayesian loss function, which the Central Bank is instructed to implement. It is hard to describe such close interaction as full delegation.

[28] references

[29] More precisely, they affect transactions costs associated with certain changes in courses of actions, making those choices less likely.

[30] reference

instance, extending infinitely far into the future. More broadly, there are no problems of information imperfections or asymmetries, and if markets are imperfect, intelligent market participants have found ways of dealing with these limitations, e.g. through complicated contracting provisions, so again the consequences of these market imperfections are limited. Such modeling approaches, whatever their merits, provide little insights into the key stabilization problems facing developing countries; unfortunately, some of the policy stances are derived from such models, or slight perturbations of such models—or even worse, are based on incoherent modeling. For instance, during the East Asia crisis, those who argued that raising interest rates would attract more capital did so on the basis of models which assumed no default (to the extent that the reasoning was based on models); yet it was the fear of default which had motivated banks and other creditors to refuse to roll over their loans. Macroeconomic policy emphasized the role bad lending practices, but in the formal models, the financial sector was virtually limited to a simplified money demand equation. The analyses ignored credit rationing, yet credit rationing frequently arises whenever there are information problems concerning borrowers—information problems which were at least part of the problems in the financial sector (reflected in the widely expressed concern over transparency.)

Wage and price rigidities

Traditional Keynesian discussions, growing out of Hicks' IS-LM framework, focused on the role of wage and price rigidities. If wages fail to fall when there is an excess supply of labor, there will be involuntary unemployment. New Keynesian models, in this tradition, have sought to explain these wage rigidities.

The policy prescription which might seem to follow from this analysis is that if one could restore full wage and price flexibility, then the economy would be restored to its full efficiency, and the problem of unemployment would be fully resolved. The economy might still not be fully stable, simply because it is buffeted by shocks, e.g. to technology. Economists in this tradition have, accordingly, emphasized increased labor market flexibility.

The focus on wage rigidities was particularly convenient for those who believed in well functioning markets and the conservative policy agenda: it was government intervention and unions which were the source of the problem; limiting both would restore the economy to efficiency.

While excessive labor market rigidities can obviously lead to unemployment, two observations are in order: first, while (under the hypothesis that wage rigidities are the only problem with the perfection functioning of the economy) restoring full wage flexibility would restore the economy to efficiency, it does not follow that *more* flexibility results in *more* stability.[31] These are delicate matters of second-best economics, which become all the more important in conjunction with other market

[31] See Neary Stiglitz (other references)

failures. In particular, in the absence of good insurance markets, greater wage flexibility, as we have noted, may be associated with greater economic volatility.

Moreover, even in economies in which there are no *artificial* sources of rigidities—no unions, or unions only in a few sectors, and no (enforced) minimum wages—there is often unemployment. This is, for instance, true in many developing countries. Efficiency wage theories[32], in wage productivity depends on wages, provide an important set of explanations for why wages may not fall, even in the presence of high unemployment.

Efficiency wage theories have important implications for stabilization policy, for they emphasize the endogeneity of wage setting in the economy (by contrast to the more simplistic rigid wage models). Increased unemployment benefits, which in standard models help stabilize the economy, in the Shapiro-Stiglitz incentive based efficiency wage model, lead to more unemployment, as firms must raise wages to prevent workers from shirking. More government employment in some versions of the labor-turnover efficiency wage model (Stiglitz [1972], Salop [ ]) can leave the unemployment rate unchanged, and only displace private employment. While these effects may be present, they are likely overwhelmed by more standard effects: as the economy goes into a recession, the costs of being fired increases significantly, even with increased unemployment benefits, so that shirking actually is reduced.

(Efficiency wage theories have focused largely on *real* rigidities[33], while traditional Keynesian analyses have focused on nominal rigidities. The problem, however, is that nominal wages and prices are *not* rigid. In the Great Depression, they fell at the rate of 10% a year. Today, again, there is worry about deflation.)

Absence of futures markets and the role of expectations

In the standard economic model, individuals do not have to form expectations about prices and wages in the future; there is a complete set of markets, specifying wages and prices in the future, in each contingency. Macro-economics has rightly emphasized the importance of expectations—such futures markets simply do not exist. Much recent research has focused on a special class of expectational models—that where expectations give rise to behavior which is in fact consistent with those expectations; the expectations are rational.

Often, however, behavior in markets is hard to reconcile with such rational expectations; there is irrational exuberance, and irrational pessimism, in stock prices[34]. There was no event that can account for the decline in stock prices by 25% in a few days in October, 1987, that would explain how the present discounted value of future earnings or dividends should have declined by that magnitude.

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[32] See, for instance, Stiglitz [ ], Yellen [ ], Shapiro and Stiglitz [ ]
[33] Though because of problems of coordination, there can also be nominal rigidities. See, e.g. Stiglitz [ ]
[34] See, e.g. Shilller

In our earlier discussion, we stressed how different economists' model of expectation formation (including the elusive "confidence") helps explain differences in policy prescriptions.[35]

Incomplete contracts

Closely related is the fact that contracts are incomplete. Of particular concern is the imperfect indexing of credit contracts, implying that a decrease in prices (or an increase in prices at a rate that is slower than expected) is associated with a redistribution from debtors to creditors. Such redistributions can have large real effects, and the recognition that they may occur—which imposes huge risks on debtors—itself has large costs and affects behavior in important ways.

Constraints

These are but one important example of imperfections in capital markets. While imperfections of capital markets have long been discussed, the modern theory of asymmetric information has put such models on a firm footing. They explain by credit and equity rationing, and accordingly why firms act in a risk averse manner, why balance sheet, cash flow, and credit availability matter, and why banks are important as institutions devoted to ascertaining credit worthiness, and monitoring and enforcing debt contracts. These theories make sense of distinctions which have long played a role in policy discussions, such as that between firms that are insolvent, and those which are liquidity constrained: in the absence of information imperfections, with a complete set of contracts, presumably any firm with a positive net worth could obtain funds.

Behavioral macro-economics

While imperfect and asymmetric information explains why product, labor, and capital markets behave markedly different from the way envisaged in standard competitive models—even when all market participants act in a perfectly rational way—another strand of recent research has attempted to explore systematically ways in which individuals behave that does not conform to standard postulates of rationality. It has long been postulated that individuals exhibit money illusion, and are more resistant to a nominal wage cut than to a real wage cut. There is some evidence of downward nominal price rigidities. If that is the case, then the adjustment of *relative* prices may be more difficult when inflation (the rate of increase of average prices) is very low, and accordingly, low rates of inflation may be associated with lower levels of efficiency.[36]

Dynamics

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[35] This market failure can be related to the previous: if expectations of future wages and prices depend on current wages and prices in an insufficiently flexible way, it means, in effect, that there is no full flexibility of wages and prices (as perceived today), and hence markets cannot fully adjust. It may mean, for instance, that expected real interest rates are rigid.

[36] See, for instance, Akerlof et al

To a large extent, macro-economics is about *adjustments*, including the adjustments to shocks. The older literature on rigid wages and prices essentially assumed that wages and prices did not adjust, forcing the burden of adjustment on quantities. As we noted, wages and prices do adjust, but different wages and prices adjust at different rates; asset prices adjust most rapidly; prices of "commodities" like wheat more rapidly than do prices of differentiated goods sold in monopolistic and oligopolistic markets. Many of the peculiarities in the short run behavior of the economy can be related to particular features of dynamic processes. For instance, exchange rate depreciations sometimes have a negative effect in the short run, contrary to the presumption that they should lead to an increase in aggregate demand. The reason is that it takes time for new export orders to occur, and while exporters in which sales are denominated in dollars are better off (in domestic currency), those relying on imported raw materials are worse off. The exporters may not expand production until new orders come in, while those relying on imports may face liquidity constraints in paying for the now more expensive imports. Accordingly, they may contract production. Similarly, to the extent that domestic expenditures on investment are complementary with imported investment goods, and liquidity constraints are binding, the higher price of imported investment goods may, in the short run, slow down the pace of investment—including expenditures on domestic investment goods. The impact effects of a currency deprecation can, accordingly, be negative.

Much of the focus of short run policy making is on the fine details of these dynamics. We know, for instance, that firms typically delay hiring new workers until late in the recovery, as they become convinced that the recovery has really occurred. In earlier stages, they rely more heavily on an increase in hours, even though such increases may be expensive, because of overtime pay. That is why many recoveries are, at one stage or another, described as "jobless recoveries." But the fine structure of the dynamics can change from one cycle to another. For instance, in earlier downturns, firms tended not to lay off workers—a phenomenon called labor hoarding[37]--and explained in terms of the high costs of hiring and firing workers; but in the most recent downturn, firms seem to have responded to a downturn in demand by laying off workers.

St**abilization and growth**

Traditionally, stabilization policy has focused on aggregate demand, growth policy on aggregate supply, in particular, on increasing savings and investment, including investments in new technology. One strand of modern growth theory (associated with Solow, 1956) argued that not only was the long term growth rate entirely dependent on the *assumed* exogenous rate of technological change and population growth, but that the level of per capita income in the long run depended (in a closed economy) only on the savings rate. Issues of short run stabilization had no effect either on long term growth and steady state per capita income. We do not want to discuss the broader issues of growth here, but only to suggest some of the links between short run stabilization policy and long term growth.

[37] reference

Policy debates have focused on the long run costs of *excessive* austerity and how policy affects the mix of outputs. Obviously, countries have to live within their constraints. Some of the criticism of those who have enforced budget balance on developing countries accordingly seems misplaced. There are, however, two criticisms that have some substance: a) the accounting frameworks have sometimes imposed unnecessary stringency; and b) the international economic institutions have been excessively preoccupied with fears of inflation, and have not appropriately balanced the risks.

The most striking example of excessive stringency imposed by the accounting framework were noted in the earlier discussion of accounting frameworks: not including foreign aid into the government's budget; consolidating government owned enterprise borrowing with the rest of the budget; and responding inappropriately to the budget deficits which increase after the privatization of social security. But there are others: some countries, like Chile, have created rainy day or stabilization funds, which are designed to be drawn upon in the event of an economic downturn. But if such expenditures are treated just like any other form of deficit spending, and viewed as a "problem" then countries will be discouraged from self-financing deficit spending which could assist in their recovery. Similarly, in assessing how "worried" one should be about a deficit—at least in terms of incipient inflationary pressures—it makes sense to focus on the *structural* or full employment deficit.

We noted earlier that there are always risks associated with economic policies. Governments have to balance off those risks, and critics of IMF policies have argued that, by focusing excessively on fears of inflation, they have harmed growth; this is especially the case in countries in which there was large excess capacity. Russia in 1998 provides a striking example. Output had declined some 30 to 40% since the end of Communism. The changing structure of demand and the lack of investment in intervening years had clearly contributed to a decrease in the country's productive capacities. The question was, had they contracted so dramatically—a level of economic devastation beyond that associated with the worst of wars. Critics of IMF inspired policies argued that there was scope for an increase in aggregate demand, and that such an increase, while it might lead to some inflation, would also elicit an increase in aggregate supply. Such an increase in output might restart the economy, and enhance future growth. With the ruble devaluation in August 1998, the critics were provided correct: while imports did not increase much, there was robust import substitution.

By the same token, the IMF and the OECD warned against incipient inflation in the United States in 1995 and 1996, urging increases in interest rates to dampen the economy. Studies at the Council of Economic Advisers had suggested that the NAIRU had fallen, perhaps dramatically. The Council believed that the risks of inflation were far less than asserted by the IMF. In the end, the Council proved correct, but that is not the point: we felt that the IMF had not appropriately balanced the risks, that it had not weighed sufficiently the social and economic benefits that would come from the increased growth, and that it overweighed the costs of inflation and the costs of disinflation, should our judgment about the inflationary consequences prove wrong.

Of particular concern are those situations where the consequences of a policy choice are long run, and not easily reversible. The high interest rates imposed on East Asia led to massive bankruptcies (and predictably so, given the high level of indebtedness). While the IMF said that, once matters came under control, interest rates would be lowered, the firms that had been forced into bankruptcy did not become unbankrupt. There were long term consequences for growth from the short term policies. Similar arguments apply to reductions in investme4nt in education or health.

Inflation, as has been repeatedly noted, is important mainly as it affects *real* variables of concern, like growth and inequality. Inflation is like a tax, and like any tax, there are inefficiencies associated with it; it discourages the use of non-interest bearing money. In developing countries, of course, there are severe limitations on the ability to tax, and there may be large distortions with alternative taxes, especially as they are implemented in practice. It remains an open question whether a moderate inflation tax may be, for some countries, a relatively efficient way of raising revenues to finance investment expenditures.[38]

There are other important links between stabilization policy and growth. Exchange rate policy may affect growth (at least in the short term) through several, sometimes conflicting, channels.[39] Earlier, we noted the effect of exchange rates on the export sector, the import substitution sector, and on non-tradeables; there is are corresponding effects on investment, except that one needs to distinguish impacts on domestically produced investment goods and foreign produced imported goods. Changes in the exchange rate have both impact effects and long run effects, as do *expected* changes in exchange rates. For instance, expectations of a decline in exchange rates—e.g. with an overvalued but rationed currency today and a depreciated currency expected for the future—make investments (of foreign produced capital goods) particularly attractive.

On the other hand, maintenance of a low exchange rate through the accumulation of reserves (as China has been doing in recent years) means that large amounts of resources are seemingly not being deployed; the several hundred billion dollars of reserves could, presumably, earn a higher return invested in, say, manufacturing than they earn in, say, U.S. Treasury bills. Is China making a mistake in accumulating these reserves, an amount in excess of what they would need to stave off a speculative attack (especially since they restrict short term capital flows?) Arguably, China's first concern is the maintenance of as close to full employment as possible, and given the high domestic savings rate, it can muster all the domestic resources it needs for as high a level of investment as it can efficiently manage. Its needs for foreign capital goods are limited to those that it does not produce at home, and exchange rate policy helps strengthen domestic capital goods industries. The heavy flow of foreign direct investment provides a source of funding for the associated capital goods. In short, a lower exchange rate

[38] The fact, noted earlier, that the "optimal" inflation rate may be greater than zero suggests that this may in fact be the case. (See Akerlof et al, op. cit.) Note that taxes like the V.A.T. which induce relatively limited distortions in more advanced countries are likely to be far more distortionary in developing countries, simply because so much of GDP typically escapes taxation. See Emram and Stiglitz.

[39] See Williamson 2003

would be associated with a lower profitability in the tradeable sector, and this would adversely affect both employment and investment, and thus growth. This affect almost surely dominates the fact that a higher exchange rate would make imported capital goods less expensive and that, somehow, *some* of the resources that are currently being hoarded in reserves would make their way into investment.

Policies which put the burden of adjustment on interest rates make borrowing riskier; in economies in which equity markets work very imperfectly (even in the most advanced industrial countries, a relatively small fraction of new investment is financed by the issuance of equity), this induces firms to borrow less. Lower debt equity ratios slow down the pace of growth, and actually impede the allocative efficiency of the capital market: it becomes more difficult to move resources those who have "excess" savings to those who have a deficiency.

Other policies which expose the economy to greater risk (like capital market liberalization), of course, increase the riskiness of investment, and thereby discourage investment and growth. The relevant question is the impact of the *form* or structure of the stabilization policy on growth. Assume, for instance, that a focus on price stability results in less volatility in inflation, but more volatility in output. Is investment more sensitive to volatility in inflation, or volatility in output? Most standard theories would suggest the latter (so long as inflation is kept within bounds), and that indeed with variable rate loans, the real interest rate (the variable which standard theory says should be the focus of firms' concern) varies little.

Stabilization, growth, and poverty

We have repeatedly emphasized the distributional consequences of alternative policies, and the fact that different parties bear the risks associated with different policies. While it is often asserted that inflation is the cruelest tax on the poor, a more detailed look at the costs of inflation versus unemployment suggests the contrary, at least for many countries.[40] Inflation hurts those with large money holdings (typically not the poor). The poorest individuals in most economies work in competitive labor markets, with wages adjusting to *real* factors, such as the demand and supply of labor; such markets typically do not exhibit strong wage rigidities. To be sure, workers in the formal manufacturing sector in economies in which there has not been a history of inflation will see their wages lag behind prices; but over time, wages again adjust, and if inflation is persistent, contracts adjust by including cost of living clauses. In most countries, too, social security payments adjust for inflation, and even those who hold bonds will see interest payments rise (except if they have bought long term bonds.)

[40] Empirical studies have often been highly misleading. Periods of high inflation are often associated with real disturbances to the economy, such as the oil price shocks of the 70s; these real shocks have real consequences, and in some cases, those consequences may be borne disproportionately by the poor. The question is not whether in inflationary episodes the poor have fared poorly, but whether, given whatever shocks, the poor fared better in those countries that maintained robust employment relative to those who fought inflation hardest.

A similar analysis applies to the consequences of an unanticipated currency depreciation, which in some instances results in an increase in the prices of imported basic necessities, before the corresponding increases in wages, and thus leads to increased poverty.

On the other hand, a *low* exchange rate, and perhaps even more so, an exchange rate that is *expected* to depreciate, stimulates investments in and output of exports and import substitutes, and accordingly may be associated with employment creation and poverty reduction. This is especially the case for a country, like China, in which there is an inadequately developed safety net: the job creation associated with exchange rate policy *is* the anti-poverty policy.

By contrast, the incidence of cyclical unemployment is disproportionately on the unskilled and low wage workers[41]; typically (though not always) higher skilled workers can displace a lower skilled workers, if he is willing to accept a wage cut.

By the same token, the incidence the budget cuts associated with excessive budgetary stringency discussed in the previous section falls disproportionately on the poor, as public education and health are among the areas that are often cut.

On average, of course, growth is associated with poverty reduction, and to the extent that stabilization policies promote or hurt growth, they may correspondingly reduce or increase poverty (relative to what it might otherwise have been.) But some growth strategies are more pro-poor than others, and by the same token, some stabilization strategies are more pro-poor than others. Those that succeed in stabilizing the economy, reducing the risk, are likely to be more pro-poor, precisely because the poor bear disproportionately the brunt of the risk, and the poor are least able to bear these risks.

Concluding Remarks

Market economies have always been subject to high levels of volatility. In spite of progress in economic science, we not only have failed to eliminate this volatility; there is some evidence that it may have become even worse, with some hundred countries within the developing countries having experienced some form of crisis in the last three decades. Nor has progress in economic science eliminated some of the central controversies concerning the appropriate conduct of stabilization policies—those policies designed to stabilize the economy, to respond to downturns, and to prevent inflation. In spite of the development of sophisticated econometric models to forecast the future of the economy, we remain uncertain not only about what will happen in each economy over the next few months, let alone the next few years; and we remain uncertain about the consequences of alternative policies. What we do know is that the brunt of the risks is felt by different groups within society. There is not a single policy which Pareto dominates all other policies. Accordingly, we cannot simply delegate to technocrats the task of finding that Pareto dominant policy. Economic policies inherently must be part of the political process. This paper—and the work of the task force—is not intended to resolve these uncertainties, but to help lay out, more clearly, alternative views, to facilitate a

[41] See for instance Furman and Stiglitz other references

democratic discussion of the alternatives, and more broadly, of the institutional frameworks within which the key macro-economic decisions are to be made.